Fortnightly eFolio Submission – Studio 11

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Self-Evaluation
High Distinction

GitHub Link
I use the same application to show Azure Cloud Deployment and Unit Testing tasks.

https://github.com/BrantleyXU/FIT5032/tree/main/week11/FIT5032_W11APP

Task 11.1 (Difference between CI and CD, and Azure Cloud Deployment)

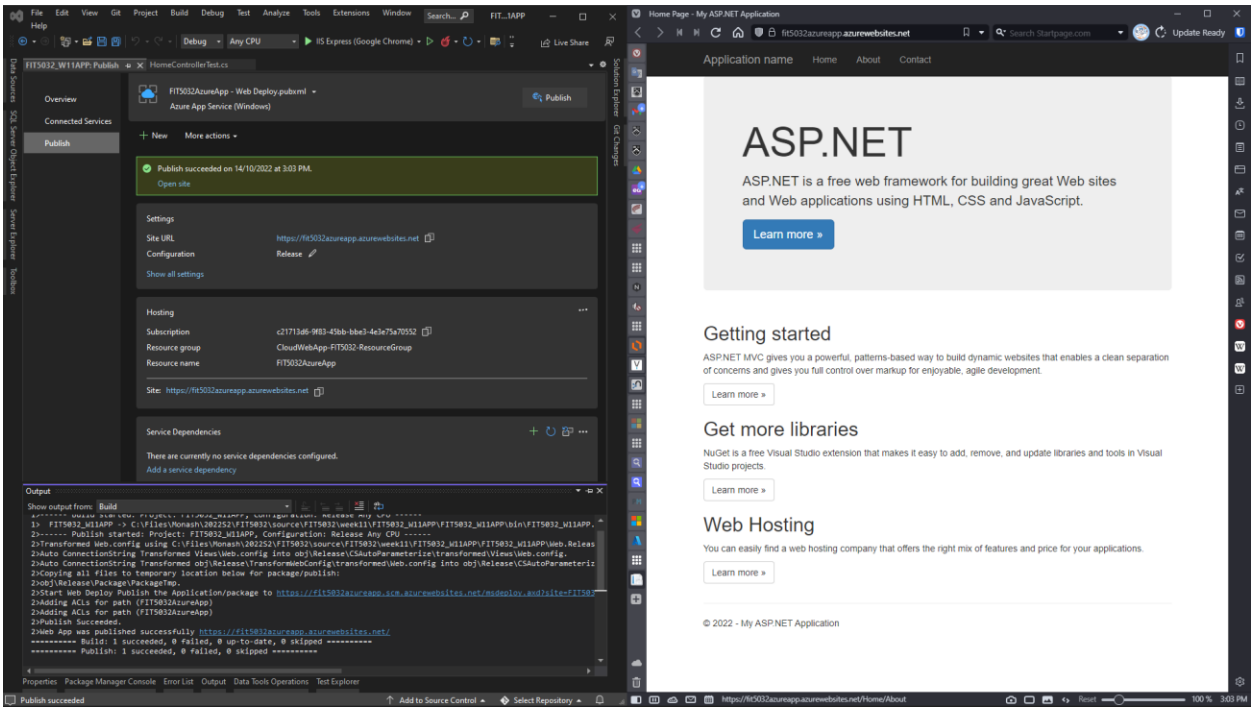
Difference between the Continuous Integration and Continuous Deployment
CI/CD usually refers to a continuous pipeline of software development. They are 3 different phases and/or approaches to mitigate issues during the software development process.

Image Source: https://www.redhat.com/en/topics/devops/what-is-ci-cd

CI stands for Continuous Integration, meaning that new code changes are always regularly built, tested and merged into the main branch in the shared repository, which is a good solution for too many branches with respect to a single application development that may produce conflicts with each other (Pittet, n.d.).

CD stands for Continuous Delivery and/or Continuous Deployment, meaning that new changes to the application are always automatically tested, uploaded and released to the repository, and then automatically deployed to the production, which is a good solution for lack of communication and visibility between the development team and business teams, and also a good method to reduce the overloading of operations teams with manual deployment processes which could slow down the application delivery (Red Hat, 2022).

Azure Cloud Deployment
Application URL: https://fit5032azureapp.azurewebsites.net



Task 11.2 (Software Testing Approaches, and Unit Testing in ASP.NET MVC)

Software Testing Approaches

List of software testing approaches (Educba, n.d.):

1. **model-based test approach**: to select a formal model for critical system behavior.

2. **dynamic test approach**: to find as many as possible defects during test execution.

3. **analytical tests approach**: to use some analytical techniques.

4. **Process or standard-compliant test approach**: to rely on an externally developed approach to test

5. **regression-averse test approach**: to use a set of automated procedures to detect regression defects.

List of software testing types (Pittet, n.d.):

1. **Unit Tests**: to test individual methods, classes, components or modules.

2. **Integration Tests**: to verity that different modules or services could work well together.

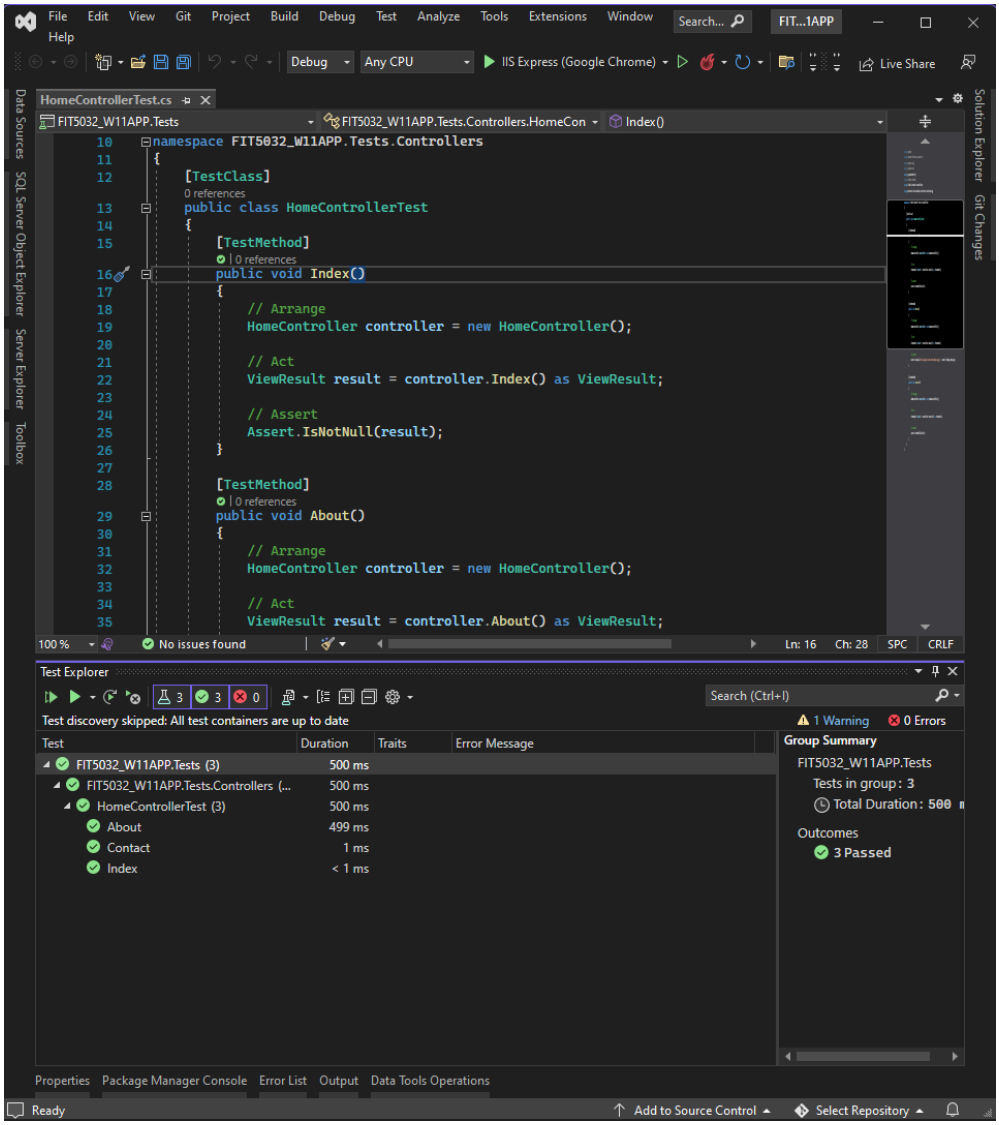
3. **Functional Tes**ts: to test business functional requirements are met well in the application.

4. **End-to-end Tests**: to replicate users' behavior with the software in a complete application environment.

5. **Acceptance Tests**: to formally test and verity if the system satisfies business requirements.

Unit Testing for ASP.NET MVC

The following screenshot shows the unit test for HomeController.cs in the ASP.NET MVC application.



References

Educba. (n.d.). Test Approaches. *EDUCBA*. https://www.educba.com/test-approaches/

Pittet, S. (n.d.). Continuous integration vs. delivery vs. deployment. *ATLASSIAN*. https://www.atlassian.com/continuous-delivery/principles/continuous-integration-vs-delivery-vs-deployment

Pittet, S. (n.d.). The different types of software testing. *ATLASSIAN*. https://www.atlassian.com/continuous-delivery/software-testing/types-of-software-testing

Red Hat. (2022, May 11). What is CI/CD?. *Red Hat*. https://www.redhat.com/en/topics/devops/what-is-ci-cd